

REMARKS

Claims 1-10 are pending in the present application. Claims 11-24 were canceled; Claims 25-30 were added; and Claim 4 was amended. Reconsideration of the claims is respectfully requested.

Claims 25-30 are directed to a method of allocating resources in a logically partitioned data processing system. Particularly, claims 25-30 are directed to a method of resource allocation that includes emulation of a shared resource as described in the subject application. No new matter has been introduced by the addition of claims 25-30.

I. 35 U.S.C. § 112, Second Paragraph

The examiner has rejected claim 4 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter, which applicants regard as the invention. Claim 4 has been amended to provide proper antecedent basis for the claim terms.

Therefore the rejection of claim 4 under 35 U.S.C. § 112, second paragraph has been overcome.

II. 35 U.S.C. § 102, Anticipation

The examiner has rejected claims 1-3 and 5 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application No. 2002/0016892 A1 to Zalewski et al. (hereinafter referred to as Zalewski). This rejection is respectfully traversed.

In rejecting claim 1, the office action recited the following passages of Zalewski:

multiple partitions
multiple instances of operating systems...distinct copy, or instance, of an
operating system

Zalewski, Abstract (in part).

The assignment of resources to each virtual machine is controlled by a program called a "hypervisor". There is only one hypervisor in the system and it is responsible for all the physical resources. Consequently, the hypervisor, not the other operating systems, deals with the allocation of physical hardware. The hypervisor intercepts requests for resources from the other operating systems and deals with the requests in a globally-correct way.

Zalewski, Paragraph 0007 (in part).

"logical partition" or LPAR. Each LPAR contains some of the available physical CPUs and resources which are logically assigned to the partition. The same resources can be assigned to more than one partition.

Zalewski, Paragraph 0008 (in part).

Each of the partitions has access to its own physical resources plus resources designated as shared.

Zalewski, Paragraph 0018 (in part).

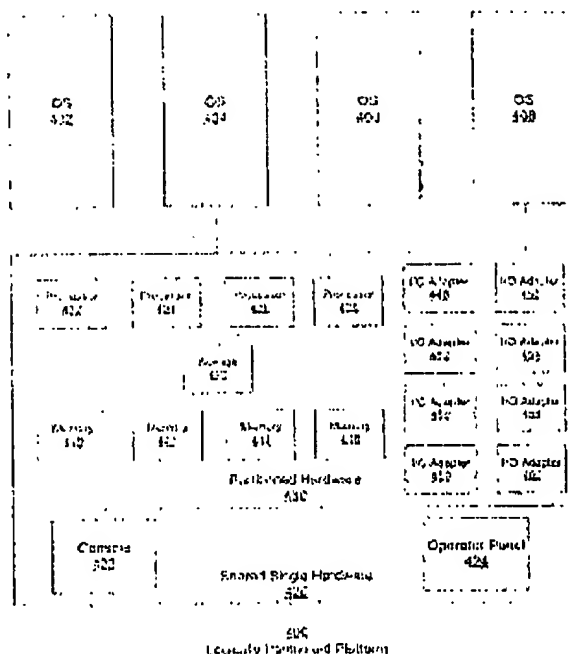
Office Action dated January 20, 2004.

With respect to this rejection, a prior art reference anticipates the claimed invention under 35 U.S.C. § 102(c) only if every element of a claimed invention is identically shown in that single reference, arranged as they are in the claims. *In re Bond*, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). All limitations of the claimed invention must be considered when determining patentability. *In re Lowry*, 32 F.3d 1579, 1582, 32 U.S.P.Q.2d 1031, 1034 (Fed. Cir. 1994). Anticipation focuses on whether a claim reads on the product or process a prior art reference discloses, not on what the reference broadly teaches. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218, U.S.P.Q. 781 (Fed. Cir. 1983). In this particular case, each and every feature of the presently claimed invention is not identically shown in *Zalewski*, arranged as they are in the claims.

For example, independent claim 1 reads as follows:

1. A logically partitioned data processing system, comprising:
 - a plurality of logical partitions;
 - a plurality of operating systems, each assigned to a separate one of the plurality of logical partitions;
 - a plurality of assignable resources, wherein each of the plurality of assignable resources is assigned to one of the plurality of logical partitions;
 - a hypervisor, wherein the hypervisor emulates shared resources and provides a virtual copy of the shared resources to each of the plurality of logical partitions.

The presently claimed invention provides a system and method for a logically partitioned data processing system to interact with a resource that may be allocated among a plurality of partitions. For example, Figure 4 of the subject application shows the following:



As can be seen, a shared single hardware unit includes devices, such as a console and operator panel, that are shared among operating system images or instances of the plurality of partitions (Page 13, Line 30–Page 14, Lines 1–3; and Page 14, Lines 12–13).

A hypervisor or other firmware is included in a data processing implemented according to the present invention that "emulates shared resources and provides a virtual copy of the shared resources to each of the plurality of logical partitions" as claimed. For example, Figure 5 shows the following:

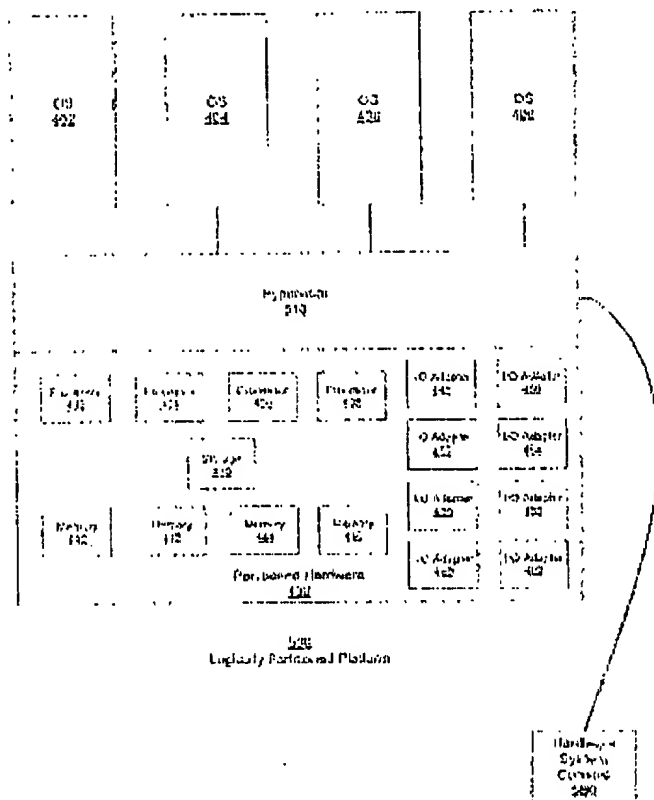
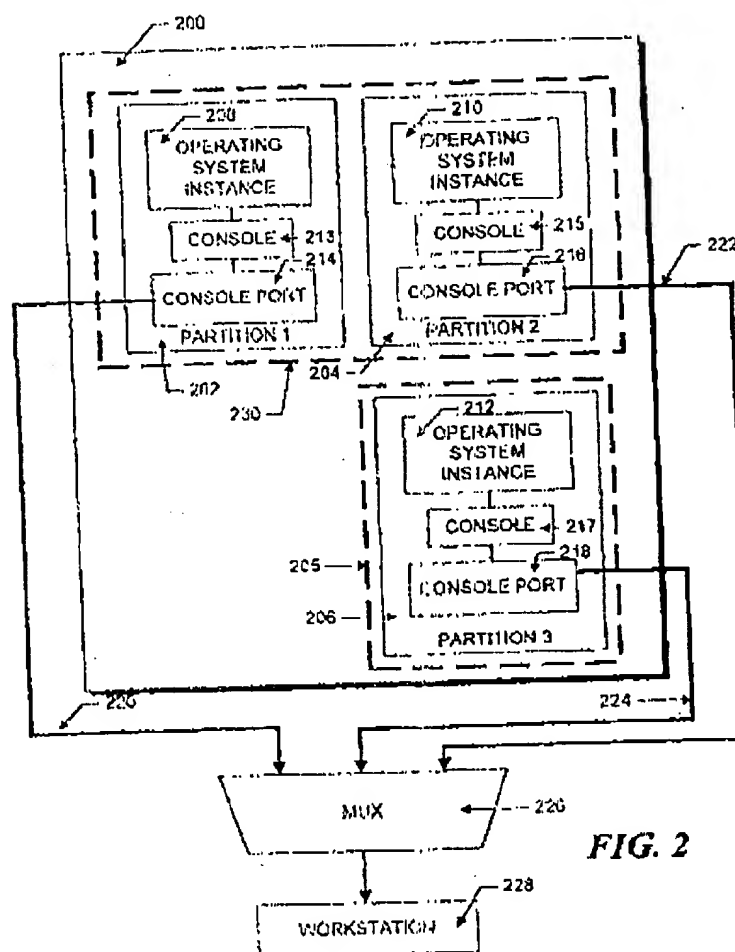


Figure 5

As can be seen, a hardware system console is connected to the logically partitioned platform. The hypervisor provides each partitions operating system instance or image with a virtual copy of a console, operator panel, or other shared device. In a preferred embodiment, provisioning of the virtual copy of shared resources is provided by firmware calls of the hypervisor that emulate a port device driver. Encapsulated data is transferred between OS images or instances and the hardware system console connected to the logically partitioned platform (Page 15, Lines 7-16).

Each and every feature of claim 1 is not described or suggested by Zalewski. For example, Zalewski does not show, describe, or suggest a logically partitioned system including a hypervisor or other logic entity for emulating shared resources to the different partitions of the system. Rather, Zalewski describes a logically partitioned system for dynamically assigning resources to different partitions. For example, Figure 2 of Zalewski shows the following:



The system described by Zalewski includes a plurality of partitions that each execute a respective single copy of an operating system. Hardware components are allocated to allow concurrent execution of multiple operating instances by a console program. Each console program is connected with a console port, such as a serial line port, or the like (Paragraphs 0033, 0034, 0035, and 037). However, Zalewski provides no description or suggestion for emulating shared resources nor for providing a virtual copy of the shared resources to partitions within the system. The discussion provided by Zalewski of logical assignment of resources to partitions and the description of both non-shared and shared resources is insufficient to anticipate the technique of emulating an allocable resource within a logically partitioned platform.

Thus, Zalewski fails to provide a teaching or suggestion for a logically partitioned data processing system that "emulates shared resources" and that "provides a virtual copy of the shared resources to each of the plurality of logical partitions." Thus, each and every feature of the presently claimed invention is not taught in the same arrangement as recited in the claim 1.

Since claims 2-3 and 5 depend from claim 1, the same distinctions between Zalewski and the claimed invention in claim 1 follows for these claims. Additionally, claims 2-3 and 5 claim other additional combinations of features not suggested by Zalewski. Consequently, it is respectfully urged that the rejection of claims 1-3 and 5 have been overcome.

Therefore, the rejection of claims 1-3 and 5 under 35 U.S.C. § 102(c) has been overcome.

Furthermore, Zalewski does not teach, suggest, or give any incentive to make the needed changes to reach the presently claimed invention. Zalewski actually teaches away from the presently claimed invention because it teaches a method of logically dividing allocable hardware into partitions as opposed to a method of virtualizing or emulating an allocable resource to multiple partitions as in the presently claimed invention. For example, Zalewski states the following:

The console program *does not virtualize* the system resources, that is, it does not create any software layers between the running operating systems 208, 210, and 212 and the physical hardware, such as memory and I/O units...
Zalewski, Paragraph 0034, in part.

Absent the examiner pointing out some teaching or incentive to implement a logically partitioned platform for virtualizing allocable resources, one of ordinary skill in the art would not be led to modify Zalewski to reach the present invention when the reference is examined as a whole. Absent some teaching, suggestion, or incentive to modify Zalewski in this manner, the presently claimed invention can be reached only through an improper use of hindsight using the applicants' disclosure as a template to make the necessary changes to reach the claimed invention.

III. 35 U.S.C. § 103, Obviousness

The examiner has rejected claims 6-10 under 35 U.S.C. §103(a) as being unpatentable over Zalewski in view of U.S. Patent No. 6,339,713 to Hansson et al. (hereinafter referred to as Hansson). This rejection is respectfully traversed.

Hansson describes a power management method and system used in mobile terminals and base station of a wireless communication system. Hansson is wholly silent with regard to logically partitioned data processing systems and to allocable resource emulation in such systems. The description of the various firmware implementations recited by Hansson provides for none of the deficiencies of Zalewski. Hansson, alone or in combination with Zalewski, is thoroughly insufficient to obviate the subject claims.

Therefore, the rejection of claims 6-10 under 35 U.S.C. §103(a) over Zalewski in view of Hanson has been overcome, and such a notice is respectfully requested.

IV. Objection to Claims

The examiner has stated that claim 4 was objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In response, claim 4 has been rewritten to overcome this objection.

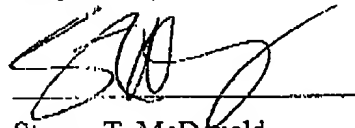
V. Conclusion

It is respectfully urged that the subject application is patentable over Zalewski and Hansson and is now in condition for allowance.

The examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

DATE: 15 April 2004

Respectfully submitted,



Steven T. McDonald

Reg. No. 45,999

Carstens, Yee & Cahoon, LLP

P.O. Box 802334

Dallas, TX 75380

(972) 367-2001

Agent for Applicant

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☒ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☐ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.